

Notice of Allowability

Application No.

09/937,243

Examiner

David J Steadman

Applicant(s)

FROST ET AL.

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed November 14, 2003.
2. ☒ The allowed claim(s) is/are 58-69,82,87-97 and 105-117.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____ | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

DETAILED ACTION

Status of the Application

- [1] Claims 58-69, 82, 87-97, and 105-117 are pending in the application.
- [2] Applicants' amendment to the claims filed November 14, 2003, is acknowledged.
This listing of the claims replaces all previous listings and versions of the claims.
- [3] Applicant's arguments filed in Paper No. 34 have been fully considered and are deemed to be persuasive to overcome the rejections previously applied.

Examiner's Amendment

- [4] An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on January 16, 2003, Mr. Saul L. Zackson requested an extension of time for 1 MONTH(S) and authorized the Director to charge Deposit Account No. 08-0750 the required fee of \$ 210.00 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
- [5] Cancel claims 70-81, 83, 85-86, and 98-104.
- [6] Replace claim 82 with the following claim:

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Claim 82. A microbe comprising a recombinant DNA encoding myo-inositol-1-phosphate synthase, wherein the recombinant DNA is plasmid pAD1.88A.

[7] In claim 105, part b), insert "a naturally occurring" immediately after "expresses" and delete "activity".

[8] In claims 113 and 114, insert "the naturally occurring" immediately after "encoding".

Claim Rejections – 35 USC 112, First Paragraph

[9] In view of applicants' amendment and arguments filed November 14, 2003 and the examiner's amendment stated above, the written description and scope of enablement rejections of claims 58-69, 79-81, 83, 87-97, and 105-116 under 35 USC 112, first paragraph, are withdrawn. The amendment limits the recited nucleic acids encoding myo-inositol-1-phosphate synthase and inositol dehydrogenase to those that are naturally occurring and applicants have provided sufficient evidence to demonstrate that nucleic acids encoding naturally occurring myo-inositol-1-phosphate synthase and inositol dehydrogenase were well known in the art at the time of the invention (see pages 11-12 of the amendment filed June 13, 2003).

Also, regarding conditions for converting myo-2-inosose to 1,2,3,4-tetrahydroxybenzene by acid catalyzed dehydration, applicants argue that Posternak et al. does not discuss acid catalyzed dehydration of inososes and instead discusses conversion of inososes to 1,2,3,5-tetrahydroxybenzene under conditions other than acidic

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conditions, e.g., basic conditions. Applicants argue that acid catalyzed dehydration reaction conditions are well known in the art and those conditions cited in the specification (page 10, lines 12-14) would not be critical for conversion of myo-2-inosose to 1,2,3,4-tetrahydroxybenzene. Applicants' arguments are found persuasive. A review of a translation of the reference of Posternak et al. (attached to the amendment filed November 14, 2003) provides no indication that Posternak et al. attempted or contemplated acid catalyzed dehydration of inososes, particularly myo-2-inosose. It appears that the statement provided in the specification regarding conversion of myo-2-inosose to 1,2,3,5-tetrahydroxybenzene is related to conversion under basic conditions and not acidic conditions (page 10, lines 6-8). As conditions for acid catalyzed dehydration other than those disclosed in the specification are well known in the art and there is no expectation that these conditions would provide a similar result, i.e., conversion of myo-2-inosose to 1,2,3,4-tetrahydroxybenzene, a skilled artisan would recognize that the specific conditions recited in the specification are not critical for conversion of myo-2-inosose to 1,2,3,4-tetrahydroxybenzene.

Reasons for Allowance

[10] The following is an Examiner's statement of reasons for allowance. The examiner has found no teaching or suggestion in the prior art directed to a fermentation composition comprising a first microbe which comprises a recombinant DNA encoding a naturally-occurring myo-inositol-1-phosphate synthase and a second microbe, which expresses a naturally-occurring inositol dehydrogenase. It is noted that polynucleotides

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encoding myo-inositol-1-phosphate synthase have been identified only in yeast, while polynucleotides encoding inositol dehydrogenase have been identified only in bacteria. It is also noted that the claims are limited to a microbe comprising a recombinant DNA encoding a naturally occurring myo-inositol-1-phosphate synthase. Therefore, a mixed culture of wild-type bacteria and yeast would not read on the claimed composition and the examiner knows of no reason to combine a microbe comprising a recombinant DNA encoding a naturally occurring myo-inositol-1-phosphate synthase with a second microbe. Also, the examiner has found no teaching or suggestion in the prior art directed to a method for the production of 1,2,3,4-tetrahydroxybenzene as encompassed by the claims. Therefore, claims 58-69, 82, 87-97, and 105-117, directed to a fermentation composition comprising a first microbe which comprises a recombinant DNA encoding a naturally-occurring myo-inositol-1-phosphate synthase and a second microbe, which expresses a naturally-occurring inositol dehydrogenase and methods for the production of 1,2,3,4-tetrahydroxybenzene and optionally converting the produced 1,2,3,4-tetrahydroxybenzene to 1,2,3,4-trihydroxybenzene as encompassed by the claims, are allowable over the prior art of record.


[11] Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Steadman, whose telephone number is (571) 272-0942. The Examiner can normally be reached Monday-Friday from 7:00 am to 5:00 pm. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

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supervisor, Ponnathapura Achutamurthy, can be reached at (571) 272-0928. The FAX number for submission of official papers to Group 1600 is (703) 308-4242. Draft or informal FAX communications should be directed to (571) 273-0942. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Art Unit receptionist whose telephone number is (703) 308-0196.

David J. Steadman, Ph.D.
Patent Examiner
Art Unit 1652


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